

**I/WE CLAIM:**

1. A high yield fixture for the production of demultiplexer filters for dense wavelength division multiplexers, the fixture comprising:

- 5 a disk, the disk adapted to be rotatable at greater than 2400 rpm during operation;  
a dedicated multi-crystal quartz crystal thickness monitor;  
an optical thickness monitor;  
a clam shell shutter;  
a magnetic induction rotation mechanism; and,  
10 multiple substrates, the substrates located concentrically about the quartz crystal monitor.

2. A high yield fixture for production of optical filters, the fixture comprising:

- 15 a thickness monitor;  
a rotating member;  
shuttering means for shuttering the fixture;  
at least one substrate; and,  
rotating means for rotating the fixture.

20 3. The fixture of claim 2, wherein the rotating member is a disk adapted to be rotated at greater than 500 rpm.

4. The fixture of claim 3, wherein the thickness monitor is a  
25 dedicated quartz crystal monitor.

5. The fixture of claim 4, wherein the shuttering means is a clam shell shutter.

30 6. The fixture of claim 5, wherein the fixture further comprises:

multiple substrates, the substrates located concentrically about the monitor.

7. The fixture of claim 6, wherein the substrate is divided into a grid of dies.

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8. The fixture of claim 7, wherein the rotating means is a magnetic induction rotation mechanism.

9. The fixture of claim 8, wherein the rotating member is a disk adapted to be rotated at greater than 2400 rpm

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10. A high speed substrate assembly for use in a line-of-sight deposition process, the assembly comprising:

multiple independent fixtures, the fixtures comprising:

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at least one substrate;

at least one thickness monitor;

shuttering means for shuttering the fixture; and,

rotating means for rotating the fixture.

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11. The assembly of claim 10, wherein the at least one thickness monitor further comprises:

a dedicated quartz crystal monitor; and,

an optical thickness monitor.

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12. The assembly of claim 11, wherein the fixtures further comprise: a rotatable disk, the at least one substrate and the monitors being located on the disk.

13. The assembly of claim 12, wherein the at least one substrate is

multiple substrates, the substrates being concentrically located about the quartz crystal monitor.

14. The assembly of claim 13, wherein the shuttering means is a clam  
5 shell shutter.

15. The assembly of claim 14, wherein the rotating means is a  
magnetic induction rotation mechanism.

10 16. A method for creating substantially uniformly thick optical filters,  
the method comprising the steps of:  
providing at least one evaporator;  
providing multiple independent fixtures, each of the fixtures having at least one  
substrate, at least one thickness monitor, shuttering means for shuttering the fixture, and  
15 rotating means for rotating the fixture;  
independently rotating the fixtures at greater than 500 rpm;  
independently monitoring layer thickness for each of the fixtures using the at least  
one thickness monitor; and,  
independently shuttering the fixtures to ensure uniform deposition.

20 17. The method of claim 16, wherein the method further comprises the  
step of:  
utilizing pulsed deposition to finish a layer.

25 18. The method of claim 17, wherein independently rotating the  
fixtures at greater than 500 rpm comprises the step of:  
independently rotating the fixtures at greater than 2400 rpm.

19. The method of claim 18, wherein providing multiple independent

fixtures, each of the fixtures having at least one substrate, at least one thickness monitor, shuttering means for shuttering the fixture, and rotating means for rotating the fixture comprises the step of:

- 5 providing multiple independent fixtures, each of the fixtures having multiple substrates, a quartz crystal monitor, an optical thickness monitor, shuttering means for shuttering the fixture, and rotating means for rotating the fixture, the substrates being concentrically located about the quartz crystal monitor.

20. The method of claim 19, wherein independently monitoring layer  
10 thickness for each of the fixtures using the at least one thickness monitor comprises the step of:

independently monitoring layer thickness per revolution for each of the fixtures using the optical thickness monitor.

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